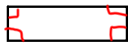


8-4 Rectangles

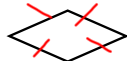
8-5 Rhombi and Squares

Rectangles, Rhombi, and Squares are all parallelograms

Rectangle--quadrilateral with 4 right angles



Rhombus--quadrilateral with 4 congruent sides

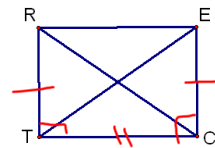


Square--quadrilateral with 4 right angles and 4 congruent sides



Given: Rectangle RECT

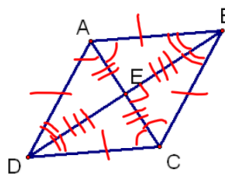
Prove: $\overline{RC} \cong \overline{TE}$
 $\triangle RTC \cong \triangle ECT$



- | | |
|---|--------------------------------------|
| ① | ① Given |
| ② $\overline{RT} \cong \overline{EC}$ | ② Opp sides of \square are \cong |
| ③ $\overline{TC} \cong \overline{TE}$ | ③ Reflexivity |
| ④ $\angle RTC + \angle ECT$
are right \angle s | ④ def of rect. |
| ⑤ $\angle RTC \cong \angle ECT$ | ⑤ all rt. \angle s are \cong |
| ⑥ $\triangle RTC \cong \triangle ECT$ | ⑥ SAS |
| ⑦ $\overline{RC} \cong \overline{TE}$ | ⑦ CPCTC |

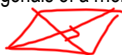
Theorem 8.13--Diagonals of a rectangle are congruent

Theorem 8.14--If the diagonals of a parallelogram are congruent, then it is a rectangle.



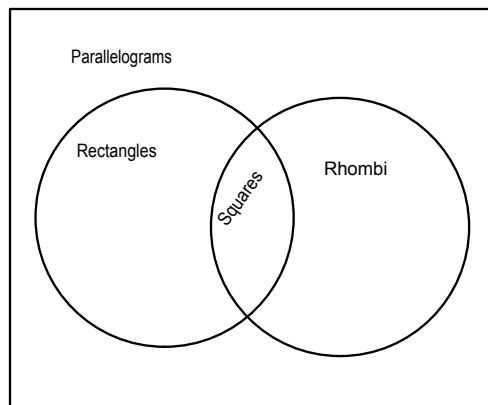
Rhombus ABCD

Theorem 8.15--The diagonals of a rhombus are perpendicular



Theorem 8.16--If the diagonals of a parallelogram are perpendicular, then it is a rhombus.

Theorem 8.17--Each diagonal of a rhombus bisects a pair of opposite angles



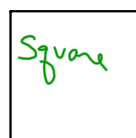
Opp sides \parallel
Opp \angle s \cong
Opp sides \cong
Consec. \angle s are suppl
Diagonals bis. each other



All \square facts
4 rt. \angle s
diagonals \cong



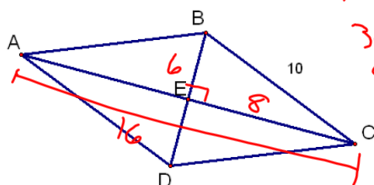
All \square facts
4 \cong sides
diagonals \perp
diagonals bisect angles



All \square facts
All Rect. facts
All Rhombus facts

Rhombus ABCD

AC = 16



Find BD. = 12

$$10^2 = BE^2 + 8^2$$

$$36 = BE^2$$

$$6 = BE$$

Is $\square ABCD$ a rectangle, rhombus, or a square. List all that apply.

1. A(-7, 3) B(-2, 3) C(1, 7) D(-4, 7)

2. A(-2, -1) B(-4, 3) C(1, 5) D(3, 1)

Check
diagonals
 $\cong ?$
 $\perp ?$



$$\overline{AC} \quad m = \frac{7-3}{1-7} = \left(\frac{4}{-8}\right) = -\frac{1}{2}$$

$$\overline{BD} \quad m = \frac{7-3}{-4-2} = \left(\frac{4}{-6}\right) = -\frac{2}{3}$$

opp rec \perp
rhombus

$$AC = \sqrt{8^2 + 4^2} = \sqrt{80}$$

$$BC = \sqrt{(-2)^2 + 4^2} = \sqrt{20}$$

Not a rect.

HW

p428-429

10, 11, 16-24, 27, 29

p434-435

12-20, 26-31